AGNICO EAGLE MELIADINE	**Exploration**
	MEL-EXP-ENV-0001
	Surface Exploration Drilling - Environmental Management

Electronic Approval	
Approver/Owner	Exploration
Approver	Environment & Geology
Reviewer	OHSC Representative

1 – PURPOSE

The purpose of this procedure is to provide direction for surface exploration activities to minimize the potential for environmental impacts related to these activities and to ensure compliance with the laws, regulations, and authorizations applicable to the Meliadine Gold Project.

This procedure encompasses multiple Standard Operating Procedures (SOP) for On-ice and On-land drilling activities and the related operations, inspections, documentation, reclamation, and reporting requirements for each activity.

2 – SCOPE

This procedure applies to all Agnico Eagle personnel and contractors involved in surface exploration activities at the Meliadine Gold Project.

3 – REGULATORY CONTEXT

Water License 2BB-MEL1424 Part E:

2. The Licensee shall dispose of all drill waste, including water, chips, muds and salts (CaCl2) in any quantity or concentration, from land-based and on-ice drilling, in a properly constructed sump or an appropriate natural depression located a distance of at least thirty one (31) metres from the ordinary High Water Mark of any adjacent water body, where direct flow into a water body is not possible and no additional impacts are created.

4. Drilling additives or mud shall not be used in connection with holes drilled through lake ice unless they are re-circulated or contained such that they do not enter the water, or are demonstrated to be non-toxic.

11. The Licensee shall implement sediment and erosion control measures prior to and maintain such measures during construction and operation to prevent entry of sediment into water.

20. The Licensee shall not mobilize heavy equipment or vehicles in the course of this undertaking unless the ground surface is capable of fully supporting the equipment or vehicles without rutting or gouging. Overland travel of equipment or vehicles shall be suspended if rutting occurs.

Subsection 36(3) of the Fisheries Act states:

Subject to subsection 36(4), no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water.

A deposit on top of ice on fish bearing waters is in a place that may enter fish bearing waters and therefore a violation of subsection 36(3) of the Fisheries Act.

4 – DEFINITIONS

Term	Definitions
Deleterious Substance	As per the Fisheries Act, section 34 (1): *(a) any substance that, if added to any water, would degrade, or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water, or*

Term	Definitions
	(b) any water that contains a substance in such quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water, and without limiting the generality of the foregoing includes: *(c) any substance or class of substances prescribed pursuant to paragraph (2)(a),* *(d) any water that contains any substance or class of substances in a quantity or concentration that is equal to or in excess of a quantity or concentration prescribed in respect of that substance or class of substances pursuant to paragraph (2)(b), and* *(e) any water that has been subjected to a treatment, process or change prescribed pursuant to paragraph (2)(c); (substance nocive)* The includes but is not limited to hydrocarbons, drill fluids, drill recirculation water containing sediment, and drill cuttings.
Deposit (Spill)	As per the Fisheries Act, section 34 (1): *any discharging, spraying, releasing, spilling, leaking, seeping, pouring, emitting, emptying, throwing, dumping or placing.*
High Water Mark	The usual or average level to which a body of water rises at its highest point and remains for sufficient time to change the characteristics of the land. In flowing waters (e.g., rivers, streams) this refers to the "active channel/bank-full level" which is often the 1:2-year flood flow return level. In inland lakes,

Term	Definitions
	wetlands or marine environments it refers to those parts of the water body, bed and banks that are frequently flooded by water so as to leave a mark on the land and where the natural vegetation changes from predominately aquatic vegetation to terrestrial vegetation (excepting water tolerant species). For reservoirs this refers to normal high operating levels (i.e. full supply level).
Waste	any substance that, by itself or in combination with other substances found in water, would have the effect of altering the quality of any water to which the substance is added to an extent that is detrimental to its use by people or by any animal, fish or plant, or any water that would have that effect because of the quantity or concentration of the substances contained in it or because it has been treated or changed, by heat or other means, and includes: (a) any substance or water that, for the purposes of the Canada Water Act, is deemed to be waste; (b) any substance or class of substances specified by the regulations; (c) water containing any substance or class of substances in a quantity or concentration that is equal to or greater than that prescribed by the regulations; and (d) water that has been subjected to a treatment or change described by the regulations.
Waters	inland waters, whether in a liquid or solid state, on or below the surface of land.

5 – OVERARCHING PROCEDURES FOR DRILLING ACTIVITIES

5.1 Communication and Verification

Before mobilizing equipment or workers to an exploration area, the Geology Department must request an Internal Environmental Permit (IEP) from the Environment Department. The permit application is to be submitted 14 days in advance of the intended start date of the drilling program to provide sufficient time for the Environment Department to review the details of the exploration program and provide feedback on any foreseeable environmental risks and recommended mitigations. The information to be included in the IEP application must include but is not limited to the following:

- The date when the drilling program will start and the expected duration.
- The location of the proposed drill targets and potential travel path(s).
- The proposed water sources(s).
- The location and quantity of all petroleum fuel caches.
- The location of drill cuttings disposal area(s).

With this information, the Environment Department will verify compliance with the laws, regulations, and authorizations applicable to the Meliadine Gold Project.

5.2 Protection of Water, Fish and Fish Habitat

Drilling supervisors are responsible to ensure the following:

- Measure and record, in cubic metres, the daily quantities of water utilized for drilling and other purposes authorized by the Water Licence.
- If water is taken directly from a lake source, drilling personnel must screen the intake line appropriately to prevent fish entrainment and impingement as per the Department of Fisheries and Oceans Canada (DFO) Code of Practice for end-of pipe fish protection screens for small water intakes in freshwater.
- Ensure streams cannot be used as a water source at any time.
- If temporary winter crossings are required using ice bridges and snow fills, they shall be constructed as per the DFO Code of Practice for ice bridges and snow fills.
- Drill casing must be doubled (2 casings; one inside the other), and the outer casing must be burnt into bedrock to seal the water return pathway.

- Cuttings and return water must be contained, and water pooling around the drill collar must be minimized.
    - The cuttings bin/water recycling system must be free of leaks, with system in place to protect against overflow.
    - All return lines in cuttings bin/tanks must be weighted.
- Drill equipment must be in good working order, properly maintained and not leaking.
- Drill equipment and skids must be free of dirt or debris before being transported onto ice.
- All fuels and chemicals must be stored within secondary containment:
    - This includes all lines, valves and filters for fuel and hydraulics.
    - Secondary containments must be free of spilled products and water/snow.
    - Absorbent matting and drop trays need to be located under each unit that contains or uses hydrocarbon products and be free of any drips or spills.
    - The refuelling system must be equipped with a proper nozzle compartment that offers containment. This compartment and the fuel caps on top of the tank will have absorbent matting as a precaution.
    - Return water that hydrocarbons or chemicals have contaminated cannot be released to the environment and must be collected for proper disposal.
    - Funnels and other water catchment devices must be in place and functioning properly.

The Environment General Supervisor must approve drilling additives.

5.3 Protection of Tundra

Drilling supervisors must ensure the following:

- Any equipment used directly for or to support drilling activities must not cause rutting or gouging of the tundra.
- Any water discharged to the tundra must not cause erosion.
- Cuttings disposal locations must be identified with and signed off on by the Environment Department, and GPS coordinates maintained in inspections.

- Wooden walkways must be used in all high-traffic areas to prevent footpaths from being worn into the tundra and damaging vegetation.
- Hoses and cords off the ground/ice and all extra materials must be stored neatly to minimize footprint and tripping hazards.

5.4 Protection of Archeological and Heritage Features

Drilling supervisors must ensure the following:

- Drill target areas have been screened for archaeological sites by comparing potential drill locations with the archeological database.
- A minimum 30m buffer zone must be established between drill sites and known archeological features.

5.5 Spills to Land and Water

All drilling-related materials and liquids need to be considered as potentially deleterious. These instances must be documented to evaluate if their presence may be explained as regular operation or as a spill. Spills of cuttings and drilling brine that contain salt can have a long-term impact on the environment. Spills which enter or may enter a waterbody can result in fines and/or charges to the individual, company, or companies responsible for the spill, especially when not reported in due time.

Drilling supervisors must ensure the following:

- Drilling personnel must monitor regularly outside, around, and under the drill for the release of water, cuttings or other material.
- All spills, no matter the size, must be reported to the Environment Department immediately including GPS coordinates, drill number, and potential sources.
- Drilling personnel must clean up spills, and contaminated materials must be disposed of as per direction from the Environment Department.

- If cuttings or excess water are released beyond the drilling footprint, notify the Environment Department and Exploration Coordinator immediately.
- In addition to immediate reporting, drilling personnel will document any spills observed around the drill rigs through the daily inspection reports they conduct and include GPS coordinates and drill numbers of the incident location.
- The source pertaining to a spill is to be evaluated and added to the inspection form. The pictures of the element observed, and its potential sources will be essential information to the document and must be included. If the spilled product is known, drill personnel shall mention its name. If the product is unknown, a sample will be taken by the Environment Department to be tested. The test results will better determine the product naming on the field during the inspections.
- Daily reports will be sent to the Environment and Geology departments on a daily basis either by the drilling supervisor or the exploration technicians and will include GPS points with a concise description of the field observation.

5.6 Waste Management:

Drilling supervisors must ensure the following:

- Waste must be labelled and segregated as per site standards and brought back to the mine site for disposal.
- Food waste must be brought back to the site for disposal at the end of each shift:
    - Food waste is a wildlife attractant and should not be left outside at any time; this includes dumping coffee/juice outside.

5.7 Use of Calcium Chloride ($CaCl_2$):

Drilling supervisors must ensure the following:

- Efforts should be made to minimize the use of $CaCl_2$. If it is determined that $CaCl_2$ is necessary to ensure the completion of drill holes, it needs to be effectively managed to protect workers and the environment due to its caustic properties.

  - Record salt concentration each shift using a refractometer to determine concentrations.
  - The concentration must be monitored to ensure the minimum and maximum requirements are met.
  - Under no circumstances should the concentration exceed 12%.
- On-ice drilling activities are not permitted to use $CaCl_2$. If $CaCl_2$ is required, it must be discussed with the Environment Department.
- Drilling personnel must store extra bags of $CaCl_2$ in a dry location where spills of dry product cannot occur and where water cannot cause the $CaCl_2$ to leach out onto the ground. The same considerations apply to opened $CaCl_2$ bags or empty $CaCl_2$ which also need to be stored in a way they cannot be blown away and can be brought back to site for disposal as per section 5.7.

5.8 Inspections

Drill site inspections are to be conducted to monitor the practices of surface exploration drilling activities, identify corrective actions, and ensure all drill sites are reclaimed once drilling activities are completed. Inspections will include:

- A pre-drilling setup inspection by drilling personnel to ensure that the proposed drilling activities comply with the IEP before they commence.
- Daily drill site inspections will be conducted by each shift by drilling personnel to verify compliance with the IEP.The work card inspection with a thorough inspection of all the units is planned twice a shift. An inspection of the spill containment units is made twice a shift by the helper driller. An inspection form is filled at this moment. A quick inspection is also made every time a driller is getting outside, with a special attention to any spilling occurrences.
- Weekly drill site inspections will be conducted by the Environment and Geology departments to verify compliance with the IEP.

A drill site closure inspection will be conducted by drilling and Geology personnel when all drill site components have been removed, and all reclamation activities have been completed. A

different form is used by the drilling supervisor and the Geology technician.Whenever possible, drill site inspections should be coordinated between the Drilling, Geology and Environment groups. At a minimum, all groups should participate in the inspections at the beginning of the drilling season so that all groups understand and agree with the expectations outlined in the IEP and SOPs.

5.9 Drill Site Clean-up:

- Drill site clean up is to be done by drilling personnel when a drill hole is completed, immediately after the drill is moved. The completeness of the clean-up activities will be documented in the inspection noted in Section 5.8.
- Water lines that cannot be recovered at the end of a drill site must be attached to a buoy and a GPS coordinate documented in the inspection report in order to facilitate recovery during the open water season.
- When winter drilling is completed and snow begins to melt, daily inspections of winter drilling site locations will be conducted by Geology and drilling personnel, with a particular attention to sites located on lakes.
- All remaining material will be removed and disposed of according to Section 5.5 above. If disposal method is unclear, contact the Environment Department for direction.

Important: Working on ice procedures must be applied, and all personnel must wear the required PPE.

- If during post-drill or end-of-winter inspections, any spills are discovered, all personnel must immediately report them to the drilling supervisor and the Environment Department, and the spilled material must be recovered and appropriately disposed of as per section 5.5.
- A map with the location of inspected areas is produced by the geology technician and joined to the inspection report, which is to be attached to the weekly geology report.

5.10 Safety:

- All required guards are in place, with no modifications to the original design.
- Heat sources are set up away from flammable materials.
- Fire extinguishers must be present, in good condition, tagged and date/punched for the current monthly inspection.
- Fully stocked first aid kits must be present and accessible.
- Ensure the exhaust is vented 3 feet above the breathing zone and adequate fittings and piping are used.
- Drill personnel must keep the current SDS at the drill site for all chemicals present at the drill site (English version at minimum, and other languages as required by the specific drill crew).

5.11 Drill Site Closure and Reclamation:

- Inspect each drilling site, remove all waste or material remaining, take pictures and complete an inspection report. See specific Drilling On-ice procedure and Drilling On-land procedure for site closure requirements at on-ice and on-land drill sites.
- All drill holes on-ice must be plugged with bentonite, and the casing removed.
- All drill stems on-land must be cut to ground level and capped when the hole is complete.
- Drilling personnel must remove all materials from the completed drill site.
- Any hole/depression around the drill stem or anchor must be backfilled.
- Personnel may use overburden, bentonite, drill cuttings and/or peat moss to backfill depressions. If using bentonite to backfill, cover the bentonite with 2-3inches of overburden or peat moss to promote re-vegetation

5.12 Other Considerations:

- Note all wildlife seen and note any issues related to wildlife and environmental monitoring, including the number of cease-work orders required because of proximity to caribou.
- Note all field encounters with local community members.
- Note each location where a fuel cache is installed (GPS coordinates).

- Note each location where water is pumped (GPS coordinates).
- Note each location where drilling waste is disposed of (GPS coordinates).
- Note all artesian flow occurrences
    - If artesian flow is encountered, drill holes shall be immediately sealed and permanently capped. Report all artesian flow to the Environment Department.

6 – SPECIFIC RESPONSIBILITIES

Role	Responsibility
Drilling Supervisor	• Ensure the implementation of this SOP • Oversee the maintenance and inspection of the drill sites • Review and signoff on all completed drill site inspection forms and implement any identified corrective actions
Drilling Personnel	• Document daily inspections on appropriate forms as outlined in this SOP • Report any spills or environmental impacts to Supervisor and Environment Department
Geology General Supervisor	• Ensure industry standards are followed, provide the contractors with clear directions in line with the client expectations
Geology Coordinator	• Confirm the implementation of this SOP • Review and signoff on all completed drill site inspection forms
Geology Technician	• Conduct drill site inspections
Environment General Supervisor	• Approve IEP, including approval of drilling additives • Ensure environmental drill site inspections are planed and carried out • Review and support the implementation of this SOP
Environment Coordinator	• Review and signoff on all completed drill site inspection forms • Assist Geology personnel and Drilling personnel with resolving deficiencies as required • Document and communicate deficiencies and corrective actions as required

Role	Responsibility
Environment Technician	• Conduct drill site inspections

7 – REFERENCES / RELATED DOCUMENTS

References
Fisheries Act
Nunavut Waters and Nunavut Surface Rights Tribunal Act
Water License 2AM-MEL1631 & 2BB-MEL1424
Department of Fisheries and Oceans Canada (DFO) - Codes of Practice
NWT & Nunavut Chamber of Mines – Diamond Drilling in Permafrost / Arctic Conditions – Best Practices

8 – CHANGE LOG

Version	Revision date	Modification	Initiator
001	22/12/2022	Procedure was created	Geology and Environment Departments